In the Claims:

Please amend the claims as follows:

1. (currently amended) A method for optimizing measurement and control of the flatness of a strip of rolled material, the method comprising:

~~creating a set of reference strip models for known flatness fault types,~~

~~creating a set of space conversion matrices, which are known to correct the known flatness fault types by optimally qualifying actuator behavior during flatness control for the given flatness error type,~~

measuring a flatness of the strip,

obtaining a visual image of ~~visualizing~~ the strip,

determining a relevant flatness fault type by comparing the ~~visualization~~ visual image to one or more reference strip models for known flatness fault types,

fusion or morphing the ~~visualization with measured data,~~ measured flatness with the determined relevant flatness fault type, and

~~choosing an associated actuator space conversion matrix, and~~

~~optimizing the control with the space conversion matrix~~

controlling flatness by comparing the fused or morphed measured flatness with a target flatness profile to determine a flatness error.

2. (previously amended) The method according to claim 1, further comprising:

making a mapping between measurement and control by associating to relevant flatness

fault types a reference strip model and the actuator space conversion matrix.

3. (previously amended) The method according to claim 1, further comprising:

making an enhanced mapping between measurement and control by an actuator correction algorithm using morphed information.

4. (previously amended) The method according to claim 1, further comprising:

mapping each reference strip model to a corresponding vector space conversion matrix according to the flatness fault type.

5. (previously amended) The method according to claim 1, further comprising:

selecting a reference strip model by comparing available reference strip models with the strip.

6. (previously amended) The method according to claim 5, further comprising:

enhancing the measured data by interpolating the reference model with measured flatness data.

7. (currently amended) The method according to claim 1, further comprising:

converting <u>the visual image of the</u> strip to a visualization format used for the reference strip models.

8. (previously amended) The method according to claim 1, further comprising:

having visual access to the strip by an operator.

9. (previously amended) The method according to claim 7, further comprising:

comparing the reference strip models with the strip visualization format.

10. (previously amended) The method according to claim 9, wherein the comparison is carried out automatically, the method further comprising:

manually tuning an automatic comparison.

11. (previously amended) The method according to claim 1, further comprising:

synchronizing measured data with video samples and with a currently performed optimization algorithm.

12. (previously amended) The method according to claim 1, further comprising:

using a morphing technique.

13. (previously amended) The method according to claim 4, further comprising:

morphing from the reference model to the measured data by adding a result of the mapping to the reference model.

14. (currently amended) A device for optimizing measurement and control of the flatness of a strip of rolled material, the device comprising:

<u>a flatness measurement device configured to measure a flatness of the strip,</u>

~~a module configured to create a set of reference strip models for known flatness fault types,~~

~~a module configured to create a set of space conversion matrices, which are known to correct the known flatness fault types by optimally qualifying actuator behavior during flatness control for the given flatness error type,~~

a ~~module~~ visualization device configured to ~~visualize~~ obtain a visual image of the strip,

a ~~module~~ comparison device configured to determine a relevant flatness fault type by comparing the ~~visualization~~ visual image to one or more reference strip models for known flatness types,

a morphing unit ~~module~~ configured to fuse or morph the ~~visualization with measured data,~~ measured flatness with the determined relevant flatness fault type,

~~a module configured to choose an associated actuator apace conversion matrix, and~~

~~a module configured to optimize the control with the space conversion matrix~~

a flatness control configured to control flatness by comparing the fused or morphed measured flatness with a target flatness profile to determine a flatness error.

15. (currently amended) The device according to claim 14, ~~further comprising: a mapping module~~ wherein the flatness control is configured to associate to relevant flatness fault types a reference strip model and an actuator space conversion matrix.

16. (currently amended) The device according to claim 14, ~~further comprising: a mapping module~~ wherein the flatness control is configured to make a mapping between measurement and control.

17. (currently amended) The device according to claim 14, ~~further comprising: a mapping module~~ wherein the flatness control is configured to make a mapping between measurement and control by an actuator correction algorithm.

18. (currently amended) The device according to claim 14, ~~further comprising: a mapping module~~ wherein the flatness control is configured to make a mapping each reference strip model to a corresponding vector space conversion matrix according to the flatness fault type.

19. (currently amended) A computer program product, comprising:

a computer readable medium; and

computer program code means recorded on the computer readable medium and executable by a processor for carrying out the steps of

~~creating a set of reference strip models for known flatness fault types,~~

~~creating a set of space conversion matrices, which are known to correct the known flatness fault types by optimally qualifying actuator behavior during flatness control for the given flatness error type,~~

measuring a flatness of the strip,

obtaining a visual image of ~~visualizing~~ the strip,

determining a relevant flatness fault type by comparing the ~~visualization~~ visual image to one or more reference strip models for known flatness fault types,

fusion or morphing the ~~visualization with measured data,~~ measured flatness with the

determined relevant flatness fault type, and

~~choosing an associated actuator space conversion matrix, and~~

~~optimizing the control with the space conversion matrix~~

controlling flatness by comparing the fused or morphed measured flatness with a target flatness profile to determine a flatness error.

20. (cancelled)

21. (previously amended) The computer program product, according to claim 19, wherein the computer program code means is for carry out the further step of at least partially providing the computer program through a network.

22. (previously amended) The computer program product, according to claim 19, wherein the computer program code means is for carry out the further step of at least partially providing the computer program through the internet.

23. (previously presented) The method according to claim 6, wherein the measured data is enhanced by using morphing.

24. (new) The method according to claim 1, further comprising:

creating a set of space conversion matrices, which are known to correct the known flatness fault types by optimally qualifying actuator behavior during flatness control for the given flatness error type,

choosing an associated actuator space conversion matrix, and

optimizing the flatness control with the space conversion matrix.